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	Develop a biennial State Strategic Plan for Technology that sets forth State IT project priorities based on agency strategic plans and an analysis of statewide or multi-agency project priorities.	27
	Establish an information clearinghouse that collects development experiences and best practices and explore other areas where the State can provide useful resources to agencies developing information systems.	25
	Develop statewide IT architecture and related systems standards.	26
	Establish e-commerce information technology standards.	7
	Establish a baseline set of information systems development standards	9
	Develop a standard for the consistent accumulation of project costs and improve the capture of those costs	10
	Present a plan to the General Assembly for the creation of the ITIB	11
	Review functions performed by Technology Planning and determine whether they should be transferred to the Secretary's office or DIT.	20
	Provide to the General Assembly a plan to develop a program to provide project management training.	24

Recommendations requiring General Assembly action

	Require biennial benchmarks of data center and reassess outsourcing every five years	5
	Require periodic reports of small, women and minority owned businesses in the procurement process	8
	Discontinue Unisys by 2002 with the exception of Social Services	6
	Reorganize State IT function by appointing a Chief Information Officer	1
	Abolish the Council on Information Management and assign to CIO	2
	Re-establish DIT activities into the Department of Technology Services	3
	Do not privatize the DIT data center	4
	Eliminate the Secretary of Technology's responsibility as Chief Information Officer and focus on statewide planning and economic development.	12
	Create a State Chief Information Officer and project management specialist positions.	13
	Require internal oversight committees for projects in excess of \$1 million dollars.	14
	Require all projects in excess of \$1 million dollars receive CIO and ITIB approval based on established criteria.	15
	Require the CIO to review and approve requests for proposals for projects in excess of \$1 million and establish an external oversight committee.	16
	Require the establishment of internal and external oversight committees for all major IT projects.	17
	Establish funding process for all IT projects and require the ITIB to submit annually a list of projects for funding to the General Assembly	18
	Establish an Office of Project Management within Technology Planning.	19
	Give the CIO the authority to direct the development of any statewide or multi-agency enterprise project.	21
	Require the CIO and Office of Project Management to provide ongoing assistance and support to agencies developing major IT systems.	22
	Require the CIO to develop a State project management methodology and to update the methodology on a regular basis.	23
	Require the ITIB to approve the biennial technology strategic plan.	28

 Implemented

 Some Progress

 Little or No Progress

SUMMARY OF REPORTS

This document provides a summary of past reports issued by the Auditor of Public Accounts and the Joint Legislative Audit and Review Commission regarding information technology in the Commonwealth of Virginia. These reports have led to changes in the Code of Virginia by creating the Secretary of Technology and later the Virginia Information Technologies Agency, the Information Technology Investment Board, the Chief Information Officer, and the Project Management Office.

This summary provides recommendations from those reports that have relevance to the CIO and the ITIB. Any future reviews of IT in Virginia will most likely include a follow-up on the prior recommendations and it is important that the CIO and ITIB determine that the issues have been properly addressed and resolved. The comments provided in italics represent a summary of actions that have occurred in response to the recommendations.

The report discussed on pages 8 to 11, served the Legislature as the document under which they framed VITA. The creation of VITA represents the attempt by both the legislature and executive branches of government to address the need for coherent statewide planning and management framework for IT resources in the Commonwealth.

All of the reports criticize the Commonwealth's lack of coherent planning for systems and hardware acquisition and indicate numerous cases where the process has failed to address these needs. The ITIB needs to address the issue of strategic planning rather the acquisition of resources. Even with the acquisition of resources, we will need to show how we have systematically addressed the Commonwealth strategic need.

JLARC Report
Review of Information Technology in Virginia State Government
December 1997

Overview

The 1996 Appropriations Act directed JLARC to complete a review of IT Services. Because of the technical nature of the study, Gartner Group Consulting Services was hired to complete the review. They provided a 500 page report, which is summarized in the JLARC report. The Gartner Group research was completed in three phases and included data collection and diagnosis, baseline analysis of existing IT environment, individual and focus group interviews, site visits to agencies, structure/governance analysis, benchmark modeling and analysis, planning and standards analysis, and a privatization review.

The recommendations below provide some history on the creation of the Secretary of Technology and the Department of Technology planning. The creation of VITA in July 2003 changed much of structure that resulted originally from these recommendations in 1997.

Recommendation 1: The Virginia General Assembly may wish to reorganize the information technology functions of State government by assigning responsibility for all information technology policy, planning, and services to a Chief Information Officer. The Chief Information Officer should be appointed by the Governor, subject to confirmation by the General Assembly. The Chief Information Officer should report to the Governor and serve as a member of the Governor's cabinet. The Virginia General Assembly may wish to establish in law specific management and technical qualifications for the position of Chief Information Officer. The role of the Chief Information Officer should be reviewed on a periodic basis to ensure that the office is appropriate to the changing information technology environment.

This recommendation resulted in amendment to the Code of Virginia creating the Secretary of Technology. The Secretary of Technology was the Chief Information Officer until new legislation creating VITA, the ITIB and the CIO became effective July 1, 2003.

Recommendation 2: The Virginia General Assembly may wish to abolish the Council on Information Management and assign all information technology policy, planning, and standards functions to the Office of the Chief Information Officer. The Chief Information Officer should be provided with adequate staff and other resources to carry out the information technology planning function.

From the recommendation, CIM became the Department of Technology Planning with the technology planning responsibilities for the Commonwealth. Later, the Department of Technology Planning became part of VITA and the Project Management Office.

Recommendation 3: All information technology services and activities now performed by the Department of Information Technology should be re-established in the Department of Technology Services. The Director of Technology Services should be appointed by the Governor and report to the Chief Information Officer.

There was no action taken on this recommendation. DIT continued to exist and the DIT Director reported to the Secretary of Technology, who was the Chief Information Officer. DIT later became part of VITA.

The following recommendations come from the 1997 JLARC report and may interest to the ITIB.

Recommendation 4: The Virginia General Assembly should not privatize the data center operated by the Department of Information Technology at this time.

The DIT data center continues operations.

Recommendation 5: The Virginia General Assembly may wish to require biennial benchmarks of the State data center. In addition, the General Assembly may wish to direct the Joint Legislative Audit and Review Commission to reassess, once every five years, the appropriateness of outsourcing the services provided by the State data center.

The General Assembly has not set biennial benchmarks and JLARC has not reassessed the outsourcing of the State data center.

Recommendation 6: The Virginia General Assembly may wish to direct that use of the Unisys mainframe be discontinued by the year 2002, with the exception of the ADAPT system at the Department of Social Services. To facilitate the migration of systems to other computer platforms, the General Assembly may wish to create a fund from which agencies may receive grants for development costs.

Social Services' ADAPT system continues to be the primary Unisys user in the Commonwealth.

APA Report E-Commerce Report November 2000

Overview

Senate Joint Resolution 72 required our office to study electronic commerce to determine whether audits of public accounts can be satisfactorily conducted using electronic procurements, contracts and transactions; and, identify any statutory or regulatory barriers or obstacles, which may prevent the implementation of electronic contracting and electronic procurement processes that are envisioned for the Commonwealth.

We have determined that audits of public accounts can satisfactorily occur in an environment using electronic procurements, contracts, and transactions. We have identified several statutory and regulatory obstacles and outline them within this report. The success of electronic commerce relies on addressing these obstacles.

Recommendation 7: The Secretary of Technology must establish information technology guidelines and standards for agencies to follow when implementing e-commerce. He must

communicate the minimum acceptable guidelines on which agencies can build their e-commerce systems. For example, if agencies must provide encryption for securing credit card payments by citizens, then this must be contained in the guidelines. Further, if the Secretary believes there must be encryption interoperability between agencies, then he should select a standard encryption technique.

VITA released a series of technical domain reports to include reports on middleware, network security, and platform architectures in May 2001, with a revision to the platform architectures in March 2004. These reports communicate the Commonwealth's strategic direction, but agencies are not required to comply with the recommendations in the reports. Generally these reports provide information about various technologies and classify them as obsolescent, transitional, strategic, or emerging.

In December 2001 VITA issued a middleware standard, networking, telecommunications and cabling standard, and an information technology security standard. Agencies are required to comply with standards and the standards describe the minimum technical requirements that selected technologies must meet. However, these standards must be reviewed and revised if they are expected to keep up with the fast pace of technology.

Recommendation 8: Since the Virginia Public Procurement Act, Sections 11-35.G and 11-48 of the Code of Virginia, provides policy statements concerning how the Commonwealth performs business, the General Assembly may wish to support DGS' e-procurement initiative and allow them to move forward, but require DGS to monitor and periodically report the status of including small, women, and minority owned businesses. Further, the General Assembly may wish to permit some pilot projects to operate using either e-commerce alone or a combination method. After some period of time, the pilot projects could report on their costs and whether they achieved the access envisioned by the Virginia Public Procurement Act. Based on these pilots, the General Assembly could determine the most appropriate action to take concerning these policies.

After making this recommendation, procurement responsibility for IT commodities shifted from General Services to VITA. Governor Warner continues to be concerned about the sufficiency of small, women, and minority owned businesses that participate in the Virginia procurement process. Cost savings initiatives such as eVA, promoting vendor partnerships under the Silver Oaks study and the promotion of PPEA's may have a negative impact on the goal of increasing small, women, and minority owned business participation.

**APA Report
Review of Financial Systems Implementations
November 2001**

Overview

We evaluated the reasons state agencies and institutions of higher education purchase independent financial systems apart from the Commonwealth Accounting and Reporting System (CARS), the success of the systems implementation, and the efficiency of the implementation approach used throughout the Commonwealth. In addition, we examined the Secretary of Technology's and the State Comptroller's responsibilities in establishing system implementation standards and guidelines.

Recommendation 9: We recommend that the Secretary of Technology establish a baseline set of information systems development standards and best practices for the state agencies and institutions of higher education.

Our review of independent financial systems found the following:

- Agencies and institutions develop independent systems because they require encumbrance accounting, detailed revenue/receivable management, and analysis of real-time and historical data, which is not available in CARS.
- Agencies and institutions have spent or have budgeted to spend in excess of \$556 million dollars to replace or implement new financial systems within the past five years.
- Software expenses are one of the smallest of all implementation cost components, with consulting, networking, and hardware representing the majority of the expenses.
- PeopleSoft and Oracle have been the predominant software vendors used by agencies; however, institutions use many different software vendors.

We recommend that the Secretary establish a baseline set of information systems development standards and best practices for agencies and institutions to follow. Following a standard framework to manage software development should allow agencies and institutions to complete information technology projects on time, within budget, and with agreed-to functionality.

This recommendation is based on the following findings:

- No standards and best practices exist for systems development projects.
- The Department of Technology Planning appoints oversight committees for projects costing more than one million dollars. However, these committees evaluate development projects based on their best judgment, not formal standards.
- A consistent method of accumulating costs for systems implementation projects does not exist.
- Lack of standards and best practices result in modifications to software that increase implementation complexity, often resulting in the termination of the systems development project.

In 2003 VITA issued a project management selection and training standard that establishes the minimum qualifications and training for project managers of Commonwealth IT projects. Also in 2003 they issued Interim Procedures for the Initiation and Approval of Major and Non-major Information Technology Projects. Finally, in April 2004 VITA's Project Management Office issued a draft Project Management Standard that they plan to release shortly. This standard describes practices adopted by the ITIB and the Project Oversight Committee for the review and approval of IT Projects as well as describes the Project Management Offices' standards and expectations.

There still exist concerns about project oversight as the Project Management Office expects to use the Dashboard as a tool to monitor project progress. The Dashboard is a self-reporting tool that does not contain all Commonwealth IT projects. Further, users are often untimely in updating the Dashboard and they may be unmotivated to report negative results. The Project Management Office has acknowledged that Dashboard has short-comings and is working to improve its effectiveness.

APA Report
Review of eVA, The Commonwealth's Electronic Procurement System
December 2002

Overview

In March 2001 the Department of General Services launched eVA as an electronic procurement system for the Commonwealth. We prepared a report on our review of this system implementation in May 2002 and issued follow-up report in December 2002. The follow-up consisted of examining the original vendor contract and contract modifications, assessing the system functionality, identifying the level of participation by agencies and vendors, interviewing General Services' and other agency staff, and analyzing the procurement and payment activity.

Recommendation 10: As noted in our report "Review of Financial System Implementation" dated November 2001, the Secretary of Technology has not developed any standard for the consistent accumulation of costs for systems development projects. Without a consistent method for accumulating project costs, it is impossible to know how much a system actually costs the Commonwealth and whether the Governor, Legislature, and agency management should continue to fund its development.

We understand that the Secretary of Technology and the Department of Technology Planning are working to define project costs in conjunction with their Project Dashboard development, a self-reporting project management tool. However, the Secretary has not issued a standard that describes the types of costs that agencies must consider as part of a systems development and how to capture the information. We recommend that the Secretary develop and issue a standard to improve the capture of systems development costs and improve information for decision-makers.

The Dashboard does contain an area that captures project cost, however the information is self-reported by the agencies and the cost elements are not consistently complete. Further, we found that the Dashboard only contains a percentage of the actual IT projects on-going in the

Commonwealth. The Project Management Office has acknowledged that Dashboard needs enhancements and plans to improve its effectiveness.

In September 2003 VITA issued the standard, "Procedures for the Review and Approval of Technology Procurements." This standard defines project cost as including the cost of internal staff. In addition VITA issued a Project Management Guideline that recommends agencies include the cost of internal staff labor as part of the project cost.

JLARC Report Review of Information Technology Systems Development January 2003

Overview

The Commonwealth of Virginia spends more than \$900 million annually on information technology. A considerable amount of this expenditure is for the development and maintenance of major information systems.

In November 2000, the Joint Legislative Audit and Review Commission directed staff to conduct a review of information technology systems development and procurement by State agencies. The review was directed as a result of concerns about recent problems with the procurement and development of automated systems. There was also concern about the apparent waste of State funds on systems never completed or deployed.

The primary research activity for this study was a detailed review of 15 major IT projects in seven of the nine secretariats. The study found that the State's experience with the development of information systems has been mixed in recent years. Some major IT projects have been well planned and managed and have substantially enhanced agency performance. However, some projects have been much less successful. In some cases, substantial amounts of State funds have been expended on projects that have been terminated or have met few of their goals. For the projects reviewed, the State has wasted at least \$75 million on failed development efforts and has incurred an additional \$28 million in cost overruns.

Many of the problems identified in this review have been identified in previous reports by JLARC, the Auditor of Public Accounts, consultants retained by the State, and internal auditors within agencies. However, many of these problems remain unaddressed. Significantly improving the systems development process will require the strong commitment of persons in responsible positions to make the proposed new process work. Challenges that impact the success of systems development projects in the Commonwealth include:

- Adequate business case is not developed for most projects
- Executive leadership is not always supportive of project success
- Statewide enterprise systems development is challenged by:
 - a. Absence of State technology standards
 - b. Agency autonomy and lack of coordination between central and line agencies
- Funding has been inadequate
- Technical feasibility is not established
- Inadequate vendor and product evaluation and selection
- Lack of strong contracts

- Lack of effective project management
- Ineffective project oversight
- Lack of reliable funding

Over the last six months, the Secretary of Technology and the Department of Technology Planning have taken several steps that may improve the approval and oversight process. However, even with these changes, the overall process for information systems development oversight remains inadequate. There is currently no mechanism to align State policy priorities with systems development projects, or to ensure that sufficient funding is available for those projects that the State deems necessary. In addition, the approval process for projects continues to be limited by having a single individual who does not represent all the business interests of the State, solely responsible for the approval of all major projects. Also, the oversight of projects that is currently performed does not provide the level of ongoing monitoring and reliable reporting that needs to occur. It remains critical for the State to provide on-going support to agencies as they attempt to develop these complex and high cost information systems.

Recommendation 11: The Governor and the Secretary of Technology should present to the General Assembly for its consideration a plan for the creation of an Information Technology Investment Board with the authority to approve or reject any proposed information systems project with an estimated cost in excess of one million dollars, or other projects of statewide significance, and to terminate any such project after approval. Such a board could be composed of each of the cabinet secretaries; at least three members of the General Assembly, including the Chair of the Joint Commission on Technology and Science; at least four citizen members with technology expertise appointed by the Governor; the State Treasurer; and the State's Auditor of Public Accounts.

Recommendation 12: The General Assembly may wish to consider amending the *Code of Virginia* to focus the responsibilities of the Secretary of Technology on statewide planning, policy development, and promoting technology-based economic development, and eliminate the position's responsibility as Chief Information Officer.

Recommendation 13: The General Assembly may wish to consider amending the *Code of Virginia* to provide for the creation of a State Chief Information Officer and project management specialist positions with responsibility for oversight, support, and planning of information systems development across all agencies. The General Assembly may further wish to require that the Chief Information Officer be employed by the proposed Information Technology Investment Board under a special contract for a set term that is not concurrent with the term of the Governor.

Recommendation 14: The General Assembly may wish to consider amending the *Code of Virginia* to require agencies to establish internal oversight committees comprised of agency executives and external oversight committees comprised of the Chief Information Officer, a representative from the proponent secretariat, and a representative of the Department of Planning and Budget, which shall be required to provide ongoing oversight of information systems projects that are estimated to cost in excess of one million dollars.

Recommendation 15: The General Assembly may wish to consider amending the *Code of Virginia* to require that all proposed information systems projects with an estimated total cost in excess of one million dollars, or other projects of statewide significance, be approved for planning by the State's Chief Information Officer and approved for development by the Information Technology Investment Board based on established criteria.

Recommendation 16: The General Assembly may wish to consider amending the *Code of Virginia* to require that the State's Chief Information Officer be required to review and approve all requests for proposals for the development of information systems in excess of one million dollars and that the external oversight committee established for each major information systems project be required to approve any contract with a private vendor in excess of one million dollars.

Recommendation 17: The General Assembly may wish to consider amending the *Code of Virginia* to require that the internal and external oversight committees established for each project conduct ongoing oversight of all major information systems projects.

Recommendation 18: The General Assembly may wish to consider amending the *Code of Virginia* to establish a funding process for information technology projects. The process may involve the use of bonds or other debt instruments issued for the development of information systems through the Public Building Authority. The Information Technology Investment Board, recommended in this report, should be required to submit a list of recommended projects for funding annually to the General Assembly for its review and approval.

Recommendation 19: The General Assembly may wish to consider amending the *Code of Virginia* in order to establish an Office of Project Management within the Department of Technology Planning and relocate the current enterprise solutions division at the Department of Information Technology in the proposed office.

Recommendation 20: The Secretary of Technology should review the current functions performed by the offices and divisions within the Department of Technology Planning and determine whether any of these functions should be transferred to the office of the Secretary of Technology or Department of Information Technology.

Recommendation 21: The General Assembly may wish to consider amending the *Code of Virginia* to give the Chief Information Officer the authority to direct the development of any statewide or multi-agency enterprise project.

Recommendation 22: The General Assembly may wish to consider amending the *Code of Virginia* to require the Chief Information Officer and the Office of Project Management to provide ongoing assistance and support to agencies in the development of major information systems.

Recommendation 23: The General Assembly may wish to consider amending the *Code of Virginia* to require the Chief Information Officer to develop a State project management methodology to be used by agencies in the development of information systems and require the Chief Information Officer to update the methodology on a regular basis.

Recommendation 24: The Governor and the Secretary of Technology should provide to the General Assembly for its consideration a plan to develop a program to provide cost-effective training to State employees with responsibility for managing information technology projects.

Recommendation 25: The Chief Information Officer should establish an information clearinghouse that includes information collected on State agency development experiences and best practices, and should explore other areas in which the State can provide useful resources to assist agencies in the development of information systems. The Chief Information Officer should also establish a program for the exchange of excess computer hardware and software licenses.

Recommendation 26: The Departments of Technology Planning and Information Technology, at the direction of the Secretary of Technology, should collaboratively develop a statewide information technology architecture and a related set of systems standards.

Recommendation 27: The Secretary of Technology, with the assistance of the Chief Information Officer, should develop a biennial State Strategic Plan for Technology that sets forth State information technology project priorities based on agency technology strategic plans and an analysis of statewide or multi-agency project priorities by the Chief Information Officer.

Recommendation 28: The General Assembly may wish to consider amending the *Code of Virginia* to require that the proposed Information Technology Investment Board approve the biennial technology strategic plan.

Most of the recommendations in the JLARC report were part of the legislation that created VITA, the ITIB, the CIO and the Project Management Office. However the recommendations also require VITA to establish standards, prioritize projects, and provide project management oversight.

VITA has recently issued Commonwealth Project Management Guidelines, which describe the framework and processes for managing IT project, the Project Manager Selection and Training Standard, which establish the minimum qualifications for managers of Commonwealth IT projects, and a Technology Management Policy that realigns the authority and responsibility of VITA, the ITIB, the CIO and agencies.

The ITIB, CIO and VITA still have work to do regarding the how to prioritize projects in developing the State's strategic plan, how to create efficiencies by identifying similar systems projects, and how to address development of statewide ERP systems.

The process that the ITIB is following represents the process criticized in all of the reports in this summary. The fundamental goal of the VITA legislation was the leveraging of existing resources, and future needs into a coherent statewide plan with clear priorities for major systems whether statewide or critical to a key agency of the Commonwealth's operations. These objectives of the VITA legislation remain unfilled.